

4

09/987,460  
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**AMENDMENTS TO THE DRAWINGS**

The attached drawing sheet at the end of this Amendment includes a change to Figure 12 to correct label "7" to be "71". This sheet replaces the original sheet which contains Figure 12.

Attachments: Replacement Sheet for Figure 12  
Annotated Sheet Showing the change to Figure 12

17

09/987,460  
349932/00

### REMARKS

Attached hereto are an Excess Claims Fee Letter and fee for three excess independent claims.

Claims 1, 2, 5, 6, 9-12, 15-21, 24-33 are all of the claims presently pending in the application. Claims 3, 4, 7, 8, 13, 14, 22, and 23 are canceled. New claims 29-33 have been added.

It is noted that Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 3, 4, 7, 8, 13, 14, 18, and 27 stand rejected under 35 USC §112, second paragraph, as being indefinite. Applicant believes that the claim amendments above address the Examiner's concerns and respectfully requests that the Examiner reconsider and withdraw this rejection.

Claims 1, 5, 9-11, 15, 16, 19, 20, 22-25, and 28 stand rejected under 35 USC §103(a) as unpatentable over US Patent 6,369,926 to Lyu et al., further in view of US Patent 5,920,414 to Miyachi et al. Claims 2, 6, 12, 17, 18, 21, 26, and 27 stand rejected under 35 USC §103(a) as unpatentable over Lyu/Miyachi, further in view of US Patent 6,282,340 to Nasu et al.

The prior art rejections are respectfully traversed in view of the following discussion.

#### **I. THE CLAIMED INVENTION**

Applicant's invention, as disclosed and claimed in, for example, independent claim 1, is directed to a collective detection method (and structure) for wavelength fluctuations of signals for use in a wavelength division multiplexing optical communication system. Wavelength division multiplexed transmission lights, comprising signal lights of a plurality of wavelengths having undergone modulation with mutually different frequencies, are photoelectrically converted after having caused the lights to be transmitted by optical filters having a plurality of wavelength pass bands and having caused the photoelectrically converted electrical signals to be transmitted by first band pass filters. The pass band of each of first band pass filters is the modulation frequency.

An output level of the pass band of each of said first band pass filters is detected,

09/987,460  
349932/00

thereby detecting any fluctuation in each of the wavelengths that the wavelength division multiplexed transmission lights contain.

A stop band of each of the wavelength pass bands in the optical filters respectively coincides with a center modulation frequency of one of the mutually different frequencies.

The conventional methods, described beginning at line 14 of page 1 of the specification, requires that either each wavelength management mechanism include a detecting element (resulting in larger size) or that a collective detection mechanism use a light spectrum analyzer (resulting in larger cost).

In contrast, the present invention provides a method by which the multiplexed light signal is filtered by an optical filter, so that a collective detector can be used, in combination with band pass filters corresponding to the modulation bands for filtering the photoelectrically-converted signals. In certain embodiments, one of the two stop-bands (e.g., the half-power frequency) of each of the optical filter pass bands is set to coincide with the carrier modulation frequency.

Because of this special setting, the stop-bands of the optical filter are shifted relative to the stop-bands the band pass filters used for the photoelectrically-converted signals. The advantage of this special configuration of the optical filter stop-band setting is that the direction and magnitude of each wavelength fluctuation can be detected. The prior art fails to teach this shift in the optical filter stop-bands relative to the photoelectrically-converted signal filter stop-bands.

## II. THE PRIOR ART REJECTIONS

The Examiner alleges that Lyu, as modified by Miyachi, renders obvious the present invention described by 1, 5, 9-11, 15, 16, 19, 20, 22-25, and 28, and when further modified by Nasu, renders obvious present invention defined by claims 2, 6, 12, 17, 18, 21, 26, and 27.

Applicant respectfully disagrees.

First, it is respectfully submitted that the prior art evaluation of the claims is constrained by the plain meaning of the claim language.

That is, relative to Lyu, the Examiner perhaps reasonably relies, as a first attempt, upon optical fiber filter 17, photodetector 18, and optical frequency stabilizing controller 19 in Figure 1 as corresponding, respectively, to similar components of independent claims 1, 5,

09/987,460  
349932/00

11, and 20. However, the plain meaning of the description of the optical filtering in these independent claims requires that the light presented to the photodetector pass through the optical filter. In Figure 1 of Lyu, the light presented to photodetector 18 is reflected from, rather than passing through, the optical filter 17.

It is submitted that the engineering reality of Lyu cannot simply be ignored. For this reason along, Applicant respectfully submits that the rejection currently of record fails to meet the initial burden of a *prima facie* rejection for obviousness.

The Examiner relies upon Miyachi as allegedly demonstrating band pass filtering and upon Nasu as allegedly demonstrating branching, but neither of these two references overcomes the deficiency identified above for Lyu.

Hence, turning to the clear language of the claims, in Lyu there is no teaching or suggestion of: "...photoelectrically converting wavelength division multiplexed transmission comprising signal lights of a plurality of wavelengths having undergone modulation with mutually different frequencies, after causing the lights to be transmitted by optical filters having a plurality of wavelength pass bands, and causing said photoelectrically converted electrical signals to be transmitted by first band pass filters....", as required by claim 1. The remaining independent claims have similar language.

For this reason alone, Applicant submits that the present is clearly patentable over Lyu.

Second, relative to the urged modification of Lyu to incorporate band pass filters that the Examiner concedes to be absent in Lyu, Applicant submits that the Examiner's burden is that of demonstrating that one of ordinary skill in the art would be motivated to substitute the band pass filters of Miyachi to replace whatever corresponding structure in Lyu is already accomplishing the function of the band pass filters, as described in the rejection. That is, the rejection of record merely recites the purpose of band pass filters. This articulation of the purpose of a band pass filter is different from presenting an explanation of why one of ordinary skill would modify the existing structure in Lyu.

Accordingly, Applicant respectfully submits that the rejection currently of record fails to provide a reasonable motivation to modify Lyu.

Third, relative to the urged combination with Nasu, Applicant submits that the Examiner seems to fail to recognize that claims 2, 6, 12, and 21 actually requires the addition

09/987,460  
349932/00

of a second band pass filter, followed by a comparison of signals from the first and second band pass filters. The rejection currently of record merely identifies a reference having a band pass filter but fails to provide a reference showing both the first and second band pass filters, as described by these claims.

Applicant directs the Examiner's attention to Figure 12 of the present Application that shows exemplarily the configuration of two band pass filters in the manner described in these claims. It is particularly brought to the Examiner's attention how the module 41 having the first band pass filters 34 also has optical filter 30, whereas the second module 42 having the second band pass filters 35 does not have a corresponding filter.

The reason for the second band pass filters in the present invention is that, in non-limiting embodiments, the optical filter 30 is constructed in the special manner shown in Figures 4-8 to have either the high-frequency stop band or the low-frequency stop band (e.g., the 3 dB, or the half-power, cut-off frequency) aligned with the carrier oscillation frequency for that band, as described at line 24 of page 12 through line 11 of page 13. As described at lines 23-26 of page 15, the advantage of shifting the optical filter from the band pass filter is wavelength fluctuation magnitude and direction can be detected for each wavelength.

Applicant submits that no prior art of record reflects this construction of optical filter 30 relative to the band pass filters and local oscillators for the stability feedback loop of laser diode modulation circuits.

Fourth, it is submitted that claims 5-28 are written in the mean-plus-function format of 35 USC §112, sixth paragraph. The prior art evaluation is, therefore, constrained by the structure described in the specification that performs that function, plus reasonable equivalents to that specific structure.

Finally, for the Examiner's benefit in better understanding the significance of this aspect of the two exemplary embodiments of the present invention in which the optical filter pass band characteristic is shifted from that of the band pass filters, Applicant has added this description to the independent claims in order to expedite prosecution for these embodiments.

For at least the reasons stated above, Applicant respectfully submit that these embodiments of the present invention are clearly patentable over the prior art currently of record.

Therefore, the Examiner is respectfully requested to reconsider and withdraw these

21

09/987,460  
349932/00

rejections.

### III. FORMAL MATTERS AND CONCLUSION

The Examiner objected to the Abstract. Applicant believes that the amended Abstract above addresses the Examiner's concerns and requests that the Examiner reconsider and withdraw this objection.

Applicant also submits a drawing correction for Figure 12 to correct the label "7" to be "71", to be consistent with terminology of the specification.

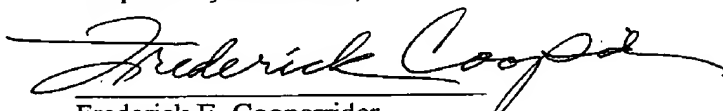
In view of the foregoing, Applicant submits that claims 1, 2, 5, 6, 9-12, 15-21, 24-33, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

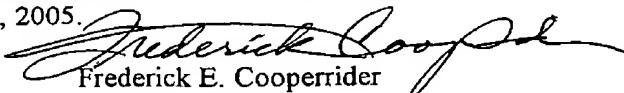
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### CERTIFICATION OF TRANSMISSION

I certify that I transmitted via facsimile to (703) 872-9306 this Amendment under 37 CFR §1.111 to Examiner Phan on January 5, 2005.

  
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